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10/529,229	09/19/2005	Habib Fathallah	87367.2700	2140

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EXAMINER

TORRES, JUAN A

ART UNIT	PAPER NUMBER
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2611

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/529,229

Applicant(s)

FATHALLAH ET AL.

Examiner

JUAN A. TORRES

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-27 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 19 September 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "over spreading in a time axis each of said user's bits of said fast frequency hopping CDMA coded optical signal" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because exceed 150 words in length. Correction is required. See MPEP § 608.01(b).

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14 and 16-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA), in view of Gerakoulis (EP 869623 A2), and further in view of Meidan (US 5193102 A) (see also Fathallah (US 6381053 B1) under statutory bar 35 USC § 102 (b) for support of AAPA)

Regarding claim 1, AAPA discloses a method of fast frequency hopping CDMA coding of optical signals for transmission over an optical network, said method comprising the steps of providing a fast frequency hopping CDMA coded optical signal

comprising a plurality of user's bits of a plurality of users (figures 1A-1C page 1 lines 11-22); and transmitting said fast frequency hopping CDMA coded optical signal over the optical network (figures 1A-1C page 1 lines 11-22). AAPA doesn't disclose over spreading in a time axis each of said user's bits of said fast frequency hopping CDMA coded optical signal and over de-spreading in the time axis each of said user's bits of said fast frequency hopping CDMA coded optical signal; and interleaving each of said user's bits of a given user with a successive user's bit of said given user and de-interleaving each of said user's bits of said fast frequency hopping CDMA coded optical signal from said successive user's bit. Gerakoulis discloses over spreading in a time axis each of said user's bits of said fast frequency hopping CDMA coded optical signal and over de-spreading in the time axis each of said user's bits of said fast frequency hopping CDMA coded optical signal (page 1 lines 24-35 figures 1, 15 and 4-6 page 8 lines 26-33 and figures 11-13 page 8 lines 34-57). AAPA and Gerakoulis are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA the overspreading disclosed by Gerakoulis. The suggestion/motivation for doing so would have been to improve the performance of the system (Gerakoulis page 2 lines 24-27). Meidan discloses interleaving each of said user's bits of a given user with a successive user's bit of said given user and de-interleaving each of said user's bits of said fast frequency hopping CDMA coded optical signal from said successive user's bit (column 12 lines 43-68). AAPA, Gerakoulis and Meidan are analogous art because they are from the same field

of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA and Gerakoulis the interleaving disclosed by Meidan. The suggestion/motivation for doing so would have been to improve the performance of the system in noise environments (Meidan column 12 lines 43-66).

Regarding claim 2, AAPA, Gerakoulis and Meidan disclose claim 1, Gerakoulis also discloses that step b) is performed prior to said step c) (page 1 lines 24-35 figures 1, 15 and 4-6 page 8 lines 26-33 and figures 11-13 page 8 lines 34-57). AAPA and Gerakoulis are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA the overspreading disclosed by Gerakoulis. The suggestion/motivation for doing so would have been to improve the performance of the system (Gerakoulis page 2 lines 24-27).

Regarding claim 3, AAPA, Gerakoulis and Meidan disclose claim 1, at the time of the invention it would be obvious to one of ordinary skill in the art to perform step c) prior to said step b), because to shift the location of a part or step is obvious if the operation is not changed (see *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

Regarding claim 4, AAPA, Gerakoulis and Meidan disclose claim 1, at the time of the invention it would be obvious to one of ordinary skill in the art to perform steps b) and c) simultaneously, because to shift the location of a part or step is obvious if the operation is not changed (see *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

Regarding claim 5, AAPA, Gerakoulis and Meidan disclose claim 1, Gerakoulis also discloses that step e) is performed prior to said step f) (page 1 lines 24-35 figures 1, 15 and 4-6 page 8 lines 26-33 and figures 11-13 page 8 lines 34-57). AAPA and Gerakoulis are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA the overspreading disclosed by Gerakoulis. The suggestion/motivation for doing so would have been to improve the performance of the system (Gerakoulis page 2 lines 24-27).

Regarding claim 6, AAPA, Gerakoulis and Meidan disclose claim 1, at the time of the invention it would be obvious to one of ordinary skill in the art to perform step f) prior to said step e), because to shift the location of a part or step is obvious if the operation is not changed (see *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position

of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

Regarding claim 7, AAPA, Gerakoulis and Meidan disclose claim 1, at the time of the invention it would be obvious to one of ordinary skill in the art to perform steps e) and f) simultaneously, because to shift the location of a part or step is obvious if the operation is not changed (see In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

Regarding claim 8, AAPA, Gerakoulis and Meidan disclose claim 1, Gerakoulis also discloses that step b) is simultaneously performed with a coding and a spreading (page 1 lines 24-35 figures 1, 15 and 4-6 page 8 lines 26-33 and figures 11-13 page 8 lines 34-57). AAPA and Gerakoulis are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA the overspreading disclosed by Gerakoulis. The suggestion/motivation for doing so would have been to improve the performance of the system (Gerakoulis page 2 lines 24-27).

Regarding claim 9, AAPA, Gerakoulis and Meidan disclose claim 8, at the time of the invention it would be obvious to one of ordinary skill in the art to perform steps c) and b) simultaneously, because to shift the location of a part or step is obvious if the operation is not changed (see *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

Regarding claim 10, AAPA, Gerakoulis and Meidan disclose claim 1, AAPA also discloses encoding means comprising an incoherent broadband source (page 2 line 12 to page 3 line 2).

Regarding claim 11, AAPA, Gerakoulis and Meidan disclose claim 1, AAPA also discloses encoding means comprising a coherent broadband source (page 3 lines 4-20).

Regarding claim 12, AAPA, Gerakoulis and Meidan disclose claim 11, Gerakoulis also discloses phase coding (page 3 lines 26-36 f and page 4 lines 39-41). AAPA and Gerakoulis are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA the phase coding disclosed by Gerakoulis. The suggestion/motivation for doing so would have been to improve the performance of the system (Gerakoulis page 2 lines 24-27).

Regarding claim 13, AAPA, Gerakoulis and Meidan disclose claim 12, Gerakoulis also discloses phase decoding (page 3 lines 26-36 f and page 4 lines 39-41). AAPA and Gerakoulis are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA the phase decoding disclosed by Gerakoulis. The suggestion/motivation for doing so would have been to improve the performance of the system (Gerakoulis page 2 lines 24-27).

Regarding claim 14, AAPA, Gerakoulis and Meidan disclose claim 1, AAPA also discloses fiber optic network (page 1 lines 24-28).

Regarding claim 16, AAPA, Gerakoulis and Meidan disclose claim 11, Meidan also discloses that a plurality of user's bits are interleaved before transmission (column 12 lines 43-68). AAPA, Gerakoulis and Meidan are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA and Gerakoulis the interleaving disclosed by Meidan. The suggestion/motivation for doing so would have been to improve the performance of the system in noise environments (Meidan column 12 lines 43-66).

Regarding claim 17, AAPA discloses a transmitter for transmitting over an optical network a fast frequency hopping CDMA coded optical signal comprising a plurality of user's bits of a plurality of users, each of said user's bits comprising a predetermined number of chips, said transmitter comprising an encoding means (figures 1A-1C page 1 lines 11-22). AAPA doesn't disclose over spreading in a time axis each of said user's bits and interleaving each of said user's bits of a given user with a successive user's bit of said given user. Gerakoulis discloses over spreading in a time axis each of said user's bits (page 1 lines 24-35 figures 1, 15 and 4-6 page 8 lines 26-33 and figures 11-13 page 8 lines 34-57). AAPA and Gerakoulis are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA the overspreading disclosed by Gerakoulis. The suggestion/motivation for doing so would have been to improve the performance of the system (Gerakoulis page 2 lines 24-27). Meidan discloses interleaving each of said user's bits of a given user with a successive user's bit of said given user (column 12 lines 43-68). AAPA, Gerakoulis and Meidan are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA and Gerakoulis the interleaving disclosed by Meidan. The suggestion/motivation for doing so would have been to improve the performance of the system in noise environments (Meidan column 12 lines 43-66).

Regarding claim 18, AAPA, Gerakoulis and Meidan disclose claim 17, AAPA also discloses plurality of filtering devices, each inserting a time spacing between two successive chips of a user's bit (figure 2 page 1 line 12 to page 2 line 10).

Regarding claim 19, AAPA, Gerakoulis and Meidan disclose claim 18, AAPA also discloses band reflective filter (figure 2 page 1 line 12 to page 2 line 10).

Regarding claim 20, AAPA, Gerakoulis and Meidan disclose claim 18, AAPA also discloses a frequency selective mirror (figure 2 page 1 line 12 to page 2 line 10).

Regarding claim 21, AAPA, Gerakoulis and Meidan disclose claim 20, AAPA also discloses frequency selective mirrors serialized in an optical link (figure 2 page 1 line 12 to page 2 line 10).

Regarding claim 22, AAPA, Gerakoulis and Meidan disclose claim 21, AAPA also discloses a plurality of time delay lines, each of said time delay lines extending between two adjacent frequency selective mirrors (figure 2 page 1 line 12 to page 2 line 10).

Regarding claim 23, AAPA, Gerakoulis and Meidan disclose claim 18, AAPA also discloses that each of said filtering devices are serialized in an optical link, each of said filtering devices comprising an input for receiving a broadband signal and a first and a second output, said first output selecting a specific wavelength of said broadband signal for outputting through a optical time delay line (figure 2 page 1 line 12 to page 2 line 10).

Regarding claim 24, AAPA, Gerakoulis and Meidan disclose claim 18, AAPA also discloses that each of said filtering devices comprises a Bragg grating of a predetermined length, each of said gratings being serialized in an optical link (figure 3 page 1 line 12 to page 2 line 10).

Regarding claim 25, AAPA, Gerakoulis and Meidan disclose claim 24, AAPA also discloses that said optical link comprises a plurality of time delay lines, each of said time delay lines extending between two adjacent gratings (figure 3 page 1 line 12 to page 2 line 10).

Regarding claim 26, AAPA, Gerakoulis and Meidan disclose claim 25, AAPA also discloses that each of said time delay lines has an identical length (figure 3 page 1 line 12 to page 2 line 10).

Regarding claim 27, AAPA discloses an optical communication system for exchanging over an optical network a fast frequency hopping CDMA coded optical signal comprising a plurality of user's bits of a plurality of users, said optical communication system comprising a transmitter comprising an encoding means and a receiver comprising a decoding means (figures 1A-1C page 1 lines 11-22). AAPA doesn't disclose over spreading in a time axis each of said user's bits and over de-spreading in a time axis each of said user's bits; and interleaving each of said user's bits of a given user with a successive user's bit of said given user and de-interleaving each of said user's bits of a given user from the successive user's bit of said given user. Gerakoulis discloses over spreading in a time axis each of said user's bits and over de-spreading in a time axis each of said user's bits (page 1 lines 24-35 figures 1, 15 and 4-6 page 8 lines 26-33 and figures 11-13 page 8 lines 34-57). AAPA and Gerakoulis are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA the overspreading disclosed by

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Gerakoulis. The suggestion/motivation for doing so would have been to improve the performance of the system (Gerakoulis page 2 lines 24-27). Meidan discloses interleaving each of said user's bits of a given user with a successive user's bit of said given user and de-interleaving each of said user's bits of a given user from the successive user's bit of said given user (column 12 lines 43-68). AAPA, Gerakoulis and Meidan are analogous art because they are from the same field of endeavor of CDMA. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA and Gerakoulis the interleaving disclosed by Meidan. The suggestion/motivation for doing so would have been to improve the performance of the system in noise environments (Meidan column 12 lines 43-66).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA, Gerakoulis and Meidan as applied to claim 1 above, and further in view of Sarchi (US 20020102082 A1).

Regarding claim 15, AAPA, Gerakoulis and Meidan disclose claim 1, AAPA also discloses fiber optic network (page 1 lines 24-28). AAPA doesn't specifically disclose a fiber optic MAN. Sarchi discloses a fiber optic 2MAN (abstract, paragraph [0001]). AAPA and Sarchi are analogous art because they are from the same field of endeavor of optical fiber. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the system disclosed by AAPA the MAN disclosed by Sarchi. The suggestion/motivation for doing so would have been to distribute the signal received from the transport network (Sarchi paragraph [0006]).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a) Fathallah, "Analysis of an optical frequency-hop encoder using strain-tuned Bragg gratings" OSA Technical Digest Series (BGPP'97) 17, Washington DC, 200-202, 1997.

b) Fathallah, "Optical frequency-hop multiple access communications system" IEEE International Conference on Communications (ICC) Proceedings, June 1998.

c) Fathallah "Robust optical FFH-CDMA communications: coding in place of frequency and temperature controls", Journal of Lightwave Technology, Volume 17, issue 8, Aug. 1999 Page(s):1284 – 1293.

d) Ben Jaafar, "1.25 Gbit/s transmission of optical FFH-OCDMA signals over 80 km with 16 users", Optical Fiber Communication Conference and Exhibit, 2001, OFC 2001.

e) Cortes, "Writing of Bragg gratings with wavelength flexibility using a Sagnac type interferometer and application to FH-CDMA", 24th European Conference on Optical Communication, 1998. Volume 1, 20-24 Sept. 1998 Page(s):411 - 412 vol.1.

f) Tomisato, "Coherent frequency hopping multiple access (CFHMA) with multiuser detection for mobile communication systems", IEEE Transactions on Vehicular Technology, Volume 49, Issue 2, March 2000 Page(s):531 – 539

g) Onoda, "Synchronous CDMA for optical subscriber systems using 'block interleave", Electronics Letters Volume 27, Issue 24, 21 Nov. 1991 Page(s):2219 – 2222.

h) Averbuch (US 5268933 A) data packet alignment in a communication system.

i) Ritz (US 5408496 A) spread-spectrum, frequency-hopping radiotelephone system.

j) Ritz (US 5619493 A) spread-spectrum, frequency-hopping radio telephone system with voice activation.

k) Hylton (US 5708961 A) wireless on-premises video distribution using digital multiplexing.

l) Erving (US 5815527 A) switching spread spectrum/code division multiple access modulated beams.

m) Mendez (US 6025944 A) wavelength division multiplexing/code division multiple access hybrid.

n) Sherman (US 6707802 B1) code division switching of communication signals by trunk coding.

o) Ozluturk (US 7072380 B2) initial power control for spread-spectrum communications.

p) Russell (US 6865215 B1) spread spectrum digital data communication overlay.

q) Schilling (US 5459759 A) frequency hopping code division multiple access

r) Barrett (US 5610907 A) ultrafast time hopping CDMA-RF communications: code-as-carrier, multichannel operation, high data rate operation and data rate on demand

s) Park (US 6215810 B1) parallel hopping hybrid direct sequence/slow frequency hopping CDMA system

t) Fathallah (US 6381053 B1) fast frequency hopping spread spectrum for code division multiple access communication networks (FFH-CDMA)

u) Huang (US 6614950 B2) fiber bragg grating-based optical CDMA encoder/decoder

v) Hiironen (US 20040170439 A1) optical cdma system.

w) Fathallah "Passive optical fast frequency-hop CDMA communications system Journal of Lightwave Technology, Volume 17, Issue 3, March 1999 Page(s):397 – 405.

x) Ding Meiling "Hybrid direct sequence/frequency hopping encoding/decoding for optical CDMA system using FBGs", International Conferences on Info-tech and Info-net, 2001, Proceedings, ICII 2001 - Beijing. 2001 Volume 2, 29 Oct.-1 Nov. 2001 Page(s):683 - 687 vol.2.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUAN A. TORRES whose telephone number is (571)272-3119. The examiner can normally be reached on 8-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juan Alberto Torres
7/28/2008

/Juan A Torres/
Examiner, Art Unit 2611